midwifery to be a very valuable introduction to the study of the more profound treatises on obstetric science and art, or preparatory to the bedside instructions given in a clinical school.

The work is illustrated by sixty-two very excellent wood-cuts—among certainly the very best, for accuracy and clearness, we have yet seen. They are executed with a boldness and freedom which remind us of the etchings of some of the older masters.

In order to illustrate the changes which occur in the height and bulk of the womb and the position of the os uteri during the progress of gestation, and the corresponding changes in the form and size of the abdomen of the pregnant female, Dr. S. gives a diagram having a perpendicular row of figures showing the height to which the fundus of the womb attains by the end of the 16th, 20th, 24th, 28th, 32d, 36th, and 40th weeks of pregnancy. Other numbers, commencing with 0 for the line of the abdomen in the non-pregnant female, indicate the shape and projection of the abdomen and the position of the navel at the termination of the 28th, 36th, and 40th weeks of gestation; while other numbers, placed within the pelvis, show the position of the os uteri in the non-pregnant female, and at the close of the 8th, 24th, 36th, and 40th weeks from conception. Dr. S. has issued in a separate and much enlarged form, and in colours, the same diagram; we do not, however, perceive that it gives any clearer or more precise idea of the facts the diagram is intended to illustrate than that which occupies rather less than a page of the volume before us. The idea of this diagram is a very good one; with some slight improvements it might be rendered still more useful to the student of midwifery. D. F. C.

Art. XXXII.—*Disease; a part of the Plan of Creation.* The Annual Discourse before the Massachusetts Medical Society, May 31, 1865. By Benjamin E. Cotting, M. D. 8vo. pp. 45. Boston: David Clapp & Son. 1866.

The author of this well-written annual discourse endeavours to show that disease is a part of the plan of the creation—"one of the myriad expressions of Divine thought," and "not a mere accident in the history of our race, or due to unwarrantable experiment upon our powers of endurance." He conjectures that "the idea of Disease must have originated in the Creator's mind, and its development formed a part of the plan of creation from the beginning. The ultimate purpose of such a plan it is not for man to determine. Deliberately devised, diseases do not necessarily imply 'gratuitous malevolence;' for, despite of some philosophers, it is quite possible to conceive of the earth and all that is therein, simply as an expression of Divine thought, without reference to the question of good and evil." To sustain such a notion the author brings forward testimony gathered from fossil remains, among which have been found evidence of caries, necrosis, exostosis, anchylosis, reunion of fractured bones, "of recovery from the most extensive lacerations, involving bony structures, by the fangs of other animals," &c.

But the absurdity of Dr. Cotting's vagary, in substance that God created a class of invisible but malevolent entities of many genera and species designed to pursue and torment and destroy every individual of the human race, as well as every organic being on the face of the earth, is self-evident. These malevolent entities are presumed to be as indestructible as matter and force; and, for this reason, when any one of the species takes possession of an organism, the wise and prudent course of the individual is to quietly acquiesce, and prayerfully expect it to abandon the premises when it finds them too strong to be destroyed. It is vain to seek for causes of diseases with a view to avoid them. He says that "common diseases in ordinary seasons" and "the severer cases of epidemics in all seasons, may never be satisfactorily accounted for by the external surroundings of the victims. After most careful investigations, writers are compelled to admit that there must be some unknown condition, some cause not understood, other than the poverty, privations, filth, and locality of those attacked." And because writers conjecture that "some unknown condition" is the cause of disease, he asserts that "the simple explanation is to be found in the idea of an original Plan, as we are attempting to demonstrate. With this as the guiding idea, how much more intelligible become such investigations of disease; how much easier the unravelling of the laws which govern organized existence; how much time saved, now lost in a fruitless search for specific causes!"

The author seems to think that because an unknown cause of certain diseases is admitted at this time, the researches of medical philosophy should cease for the reason that their labours must be in vain. Had Dr. Cotting's hypothesis prevailed a century ago scurvy would be now as unavoidable and incurable as it was then; and we should still be ignorant of the influence of vaccination in diminishing the mortality of smallpox, as well as of the mode of extinguishing intermittent from whole districts or regions of country by changing the condition or circumstances of the soil. If we admit disease to be an entity created by the Almighty in the beginning, we must also admit that its destruction by man's efforts would be as futile as an attempt to annihilate matter or force. It would be idle to combat ague with quinia, or itch with sulphur or with any other means. We should be reduced to purely expectant practice, assisted by amulets and charms, the royal touch and prayers.

Dr. Cotting says: "Time was (our own day embraces it) when it was publicly taught, that mercury given to salivation was not only the specific, or antidote, for iritis, but absolutely essential to its successful treatment; now, one of our number has been justly called a public benefactor for showing that such practice is not only unnecessary, but often grievously detrimental in that affection."

Yet, we may suppose, on this notion that disease is a part of the plan of creation, that iritis was included among created entities, in spite of this evidence of improvement in the treatment of a formidable affection. Else how can the author of this improvement be assumed to be a public benefactor. To conjecture that disease is a part of the creation and imply therefore that its cause is inscrutable, is not clearly consistent with the assertion that a physician is a public benefactor who discovers a means of curing or removing it. We concur with Dr. Cotting in his opinion that "False assumptions are dangerous expedients, and the most ignorant will ever be the most likely to practise upon them. Truth is weakened by any addition of error; and the profession that allows it must in the end abandon its own self-respect."

Unless we have grossly misconceived the views of our author, they are erroneous, and, if accepted, calculated to retard rather than assist a rational pursuit of truth. If diseases were included in the original plan of the creation, how are we to explain the appearance of affections which are recognized to be of recent origin by the most learned in the profession? Did cholera exist while Adam was in Eden?

Every organism, whether animal or vegetable, has a finite character, or in other words, is so constructed that it can possess the property of vitality only during a limited period. This possession may be lost without the agency of violence or of disease, unless extreme age be a malady. Hence it is quite fair to conjecture that the perfect equilibrium of the functions of each organism, which constitutes the state of health, may be disturbed, impeded, almost arrested, constituting disease, or entirely stopped, which is death, from the influence of physical forces operating both within and without. Disease is incidental to every organism; it is contingent upon the conditions or circumstances to which it may be exposed, and in this sense only may it be philosophically regarded as a part of the plan of creation. It seems plausible to suppose that each organism was in its contrivance so nicely balanced in all its parts that disorder and death are necessarily incidental to it within the period assigned it to live. There seems to be no more conclusive reasons for conjecturing that fevers and pestilences were special contrivances included in the design of the universe than there is to imagine that the genesis of monsters, which are met with in every genus of organism, or the fracture of bones, the laceration and incision of flesh were originally devised as specific parts in the plan of the creation. Just as wounds are resultants of the action and reaction of physical forces on organic masses in a mode satisfactorily observed by the senses, so may diseases be resultants of the action and reaction of forces on organic molecules in an unknown manner, varied in accordance with the quantity and tension of the forces and the properties of the matter subjected to action? When molecular motions in all their relations are fully understood, it seems probable that this wonderfully complex problem, the cause or genesis of disease, will be more readily solved than it is now. At any rate, we are not yet prepared to accept the transcendental doctrine that disease is of divine origin, in the sense suggested by Dr. Cotting, and was included as a specific part of the organic world.

W. S. W. R.

ART. XXXIII.—*Researches on the Medical Properties and Applications of Nitrous Oxide, Protoxide of Nitrogen, or Laughing Gas.* By GEO. J. ZIEGLER, M. D., Physician to the Philadelphia Hospital; Member of the Medical Association, Member of the Academy of Natural Sciences of Philadelphia, etc. etc. 12mo. pp. 66. Philadelphia: J. B. Lippincott & Co., 1865.

MESSRS. J. B. Lippincott & Co. are entitled to credit for the mechanical excellence of this very thin volume, from which we have been enabled to gather very little information about nitrous oxide, but whether this is attributable to any defect in the author's manner of treating the subject or our own want of perception may be a question. He claims for it wonderful powers, but relates no instances or experiments to sustain his assertions. He says, for example, it is "particularly indicated in the various ataxic and adynamic fevers, such as the typhus, typhoid or enteric, congestive, yellow, remittent, intermittent, and all others of a similar type. Nitrous oxide is, moreover, of general application and quite efficient in scarlet fever, measles, diphtheria, variola, constitutional syphilis, erysipelas, gangrene and kindred maladies. It may likewise prove more or less useful in sunstroke, pyæmia, purulent infection, puerperal fever, and necræmic and toxicæmic affections generally, those from septic poisons and the virus of venomous and rabid animals inclusive.

"The stimulant, depurant, and antidotal properties of protoxide of nitrogen also render it peculiarly valuable in the treatment of another variety of toxicosis from the inordinate and continued use of alcohol, tobacco, and opium, as well as those sudden and dangerous states of intoxication from over-doses of the same, and the poisonous effects of belladonna, aconite, hydrocyanic acid, chloroform, carburetted hydrogen, carbonic acid, and perhaps also all others of a like character."

If the author possesses any reliable testimony calculated to prove that the assertions implied in the above sentences, or even to render his conjectures plausible, we beg leave to suggest, he would do well to adduce it when his work shall reach another edition. Credulous as very many members of the profession may be in many respects, they are not prepared to accept any author's unsustained assertion that nitrous oxide is at once the antagonist or antidote of such a variety of different diseases and drugs as are above named.

Speaking "of the *modus operandi* of nitrous oxide in the production of insensibility," he uses the following remarkable language: "As before stated, the ordinary effects of protoxide of nitrogen upon the animal economy are actively and permanently stimulant, accelerating all the vital operations by increasing chemico-organic and bio-dynamic action. Thus while chemically it rapidly arterializes the blood and promotes elemental interchange, molecular activity and organic metamorphosis, dynamically it stimulates the nervous system, sensorium, and general functions of life. But when taken freely the physiological processes are accelerated to such a degree as to temporarily overcome systemic excitability and cause partial interruption of vital activity from overstimulation, the stimulus overbalancing excitability or the momentum being greater than the velocity, on the same principle as without exhaustion a horse may